REMARKS

Claims 34-52 are now pending.

Applicants would like to thank Examiner Fronda for the indication that Claims 49-52 are allowed (numbered paragraph 8, page 5 of the Office Action mailed June 15, 2006. Reconsideration of the outstanding rejections is respectfully requested in view of the amendments and remarks herein.

The present invention relates to a microorganism belonging to enterobacteria selected from the group consisting of the genus *Enterobacter*, *Pantoea*, *Klebsiella*, *Erwinia* and *Serattia* and having L-glutamic acid productivity which is transformed by a polynucleotide sequence encoding a citrate synthase obtained from *Corynebacterium glutamicum* or *Brevibacterium lactofermentum*,

where the transformed microorganism has enhanced L-glutamic acid productivity as compared to the untransformed microorganism. (See Claim 34)

The present invention also relates to a process for producing L-glutamic acid, comprising:

isolating a polynucleotide sequence encoding a citrate synthase obtained from a coryneform bacterium, wherein the polynucleotide is obtainable by the polymerase chain reaction using oligonucleotide primers of SEQ ID NO: 1 and SEQ ID NO: 2;

transforming an enterobacteria with said isolated polynucleotide;

culturing said enterobacteria in a liquid medium to produce and accumulate the L-glutamic acid, wherein the transformed enterobacteria has enhanced L-glutamic acid productivity as compared to the untransformed enterobacteria; and

collecting the L-glutamic acid produced. (See Claim 49)

The rejection of Claims 34-48 under 35 U.S.C. §112, first paragraph (written description), is respectfully traversed.

In the outstanding Office Action the Examiner alleges that "the specification only discloses bacterial strain AJ13355/pMWCB which is an *Enterobacter agglomerans* transformed with a polynucleotide from *Brevibacterium lactofermentum* encoding citrate synthase and bacterial strain AJ13399/pMWCB which is an *Kebsiella planticola* transformed with a polynucleotide from *Brevibacterium lactofermentum* encoding citrate synthase, where said polynucleotide from *Brevibacterium lactofermentum* encoding citrate synthase is obtained by PCR using primers of SEQ ID NO: 1 and SEQ ID NO: 2." The Examiner further alleges that "the specification fails to disclose any additional species of the genus which are representative of the claimed genus of microorganisms." However, these allegations by the Examiner appear to confuse "description" with "exemplification". It may be true that the specification only exemplifies bacterial strain AJ13355/pMWCB and bacterial strain AJ13399/pMWCB that are transformed with polynucleotide from *Brevibacterium lactofermentum* encoding a citrate synthase is obtained by PCR using primers of SEQ ID NO: 1 and SEQ ID NO: 2. However, Applicants description that would support the written description of the full scope of the claimed invention is not limited to that which is exemplified.

In fact, it should be noted that the nucleotide primers represented by SEQ ID NO: 1 and SEQ ID NO: 2 were based on the nucleotide sequence of the gltA gene of *Corynebacterium glutamicum* (see page 27, lines 2-10). Further, Applicants note that the sequence of the polynucleotide sequence of the gltA gene was known in the art at the time of the present invention. Specific reference is made to disclosure of Eikmanns et al, which was cited by the Examiner in the Office Action mailed October 18, 2005, and which shows that

the gltA gene of *Corynebacterium glutamicum* was described in the art as early as 1994 (five years prior to the U.S. filing date of the present application).

Applicants also note that in a recent decision the Federal Circuit held that the "written description" requirement must be applied in the context of the particular invention and the state of the knowledge in the art (*Capon v. Eshhar*, 418 F.3d 1349, 76 USPQ2d 1078 (Fed. Cir. 2005); copy submitted with the response filed March 20, 2006). In *Capon*, the Court held that the Board erred in holding that the nucleotide sequences of the chimeric genes must be fully presented, although the nucleotide sequences of the component DNA are known. The *Capon* Court further stated that when the prior art includes the nucleotide information, precedent does not set a *per se* rule that the information must be determined afresh. Therefore, according to the Court where a person experienced in the field of this invention would know that the DNA of the claims is well-known, there is no requirement to once again set forth these sequences.

The Examiner's attention is also directed to a more recent decision in which the Federal Circuit again confirmed that it is not required to explicitly describe known sequences – *Falker v. Inglis*, 79 USPQ2d 1001 (Fed. Cir. 2006). As in *Capon*, the Court adhered to the well-established rule that "[a] patent need not teach . . . what is well known in the art," the Court held that "there is no *per se* rule that an adequate written description of an invention that involves a biological macromolecule must contain a recitation of known structure." In affirming the Board's determination that Appellees adequately described the invention, the Court concluded that because "accessible literature sources clearly provided, as of the relevant date, [poxvirus] genes and their nucleotide sequences (here "essential genes"), satisfaction of the written description requirement does not require either the recitation or incorporation by reference (where permitted) of such genes and sequences."

Accordingly, in view of the disclosure in the present specification, the disclosure of Eikmanns et al, and the BLASTIN report enclosed with the Amendment submitted on March 7, 2005, Applicants submit that the polynucleotide sequence encoding a citrate synthase obtained from *Corynebacterium glutamicum* or *Brevibacterium lactofermentum* was well known as of the filing date of the present application. Therefore, no explicit recitation of these sequences is necessary and the written description of these genes is fully satisfied by the present specification.

With respect to the microorganism, Applicants direct the Examiner's attention to the disclosure provided at page 6, lines 10-18, where the genus *Enterobacter*, *Pantoea*, *Klebsiella*, *Erwinia* and *Serattia* are explicitly disclosed. Further, Applicants provide a specific disclosure of twelve exemplary species of *Enterobacter* and one exemplary species of *Serratia* at page 7, lines 2-17. At page 9, line 27 to 10, line 1, two exemplary species of *Klebsiella* are disclosed. At page 12, lines 8-16, Applicants provide an additional nine exemplary species of *Serattia*. At page 12, line 25 to page 13, line 8, eleven exemplary species of *Erwinia* are disclosed. Further, at page 13, line 25, two exemplary species of *Pantoea* are disclosed. In view of the foregoing, Applicants submit that a representative number of species are, *in fact*, ***disclosed*** for each of the claimed genus *Enterobacter*, *Pantoea*, *Klebsiella*, *Erwinia* and *Serattia*.

As for transformation, the Examiner is referred to the disclosure at page 20, lines 5-18.

Applicants direct the Examiner's attention to MPEP § 2163.02:

> An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." In re Gostelli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989).

In view of the foregoing, Applicants submit that the present specification does clearly allow the persons of ordinary skill in the art to recognize that he or she invented what is claimed. As such, the claims satisfy the written description requirement.

Withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 34-48 under 35 U.S.C. §112, first paragraph (enablement), is respectfully traversed.

In regard to bacterial strains AJ13355 (FERM BP-6614) and AJ13399 (FERM BP-6616), Applicants submit that they have deposited this strain under the terms of the Budapest Treaty. Applicants further state that all restrictions imposed by the depositor on the availability to the public of the deposited biological material will be irrevocably removed upon granting of a patent on this application.

Accordingly, the enablement requirements of 35 U.S.C. §112, first paragraph, have been fulfilled, and as such this ground of rejection should be withdrawn.

The rejection of Claims 38-45 under 35 U.S.C. §101, is obviated by amendment.

Applicants have amended Claim 34 as recommended by the Examiner to define the "microorganism" as being "isolated." As such, Applicants submit that the invention of Claims 34-45 is compliant with 35 U.S.C. §101.

Withdrawal of this ground of rejection is requested.

Applicants submit that the present application is in condition for allowance. Early notification to this effect is respectfully requested.

Respectfully submitted,

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